

RECOMMENDED GRADES: 6-12



TIME NEEDED: 30 MINUTES AND UP

Description

Students learn relative and absolute dates of important events in the history of space exploration by playing a game that challenges them to place events in chronological order.

Learning Objectives

Students will:

- learn about the history of space exploration by placing important space events in chronological order
- demonstrate the difference between absolute and relative
- observe patterns in advances in space technology and discuss the roots of those patterns

Materials

- Bingo chips (100)
- Lanyards (40 total, 10 of each color: red, blue, yellow, and green)
- Six-sided colored game die (1)
- Timeline Cards (73 cards)

Preparation

None

Tips/Modifications

Tips

- The game gets progressively more difficult as the game goes on and the space between consecutive events gets smaller and smaller. Encourage students to lock their cards frequently as the game goes on.
- Students can use the cards already on the timeline as hints for where to locate their new event. Encourage students to continually read the dates on the timeline for hints. For example, man could not have sent a probe to Pluto before Pluto was discovered.

Modifications

- This game can be played with more, or smaller, teams depending on your group size.
- If time is limited, the first group to acquire 5 chips can be declared the winner.

Rules



Have students remove shoes before walking on the map.

DIRECTIONS

1. Divide students into four teams. Assign each team a mascot— comet, asteroid, Milky Way galaxy, or meteor—and have them sit in the corresponding map corner. Pass out lanyards to each student so that each team member wears the same lanyard color.

Modification

See Part One in activity Race to the Planets to incorporate a fun way to break students into teams.

2. Ask students: *Why do we explore our solar system?* Explain that what we know about the solar system and how we come to acquire that knowledge has changed dramatically over the past 500 years. In this activity, students will be challenged to put in chronological order events from solar system exploration history and explain how events have shaped how we understand our solar system.
3. Review the rules of the timeline game below by completing a practice round with the students before you begin, officially. Explain that the objective of this game is to earn chips by placing 10 important events in space history in the correct relative or absolute order. The game ends when one team has 10 chips. Discuss the idea of relative versus absolute time. Explain that relative means that you place it in the correct order. Absolute means that you acknowledge the exact date an event took place. This will matter when it comes to a team's strategy to earn chips.
4. To begin, place one card from any deck on the proper year below the timeline on the bottom edge of the map. Explain again that you are going to do a practice round to help clarify the game rules before beginning.
5. When it is a group's turn, one member from the group rolls the die. The colors on the die correspond to a different category of space history. If a color is rolled and there are no more cards in the deck matching that color, the rolling team simply rolls again.
 - Red – Space Grab Bag
 - Blue – Manned Space Exploration
 - Green – Space Technology
 - Yellow – Planetary Explorations
 - White – Choose your own category
 - Black – Next team (clockwise) chooses your category
6. The team counterclockwise from the rolling team picks a card from the rolled-color deck and reads the description to the rolling team. Together, the team decides where, relative to the other cards already on the timeline, the new event should go. The reading team confirms the accuracy of the card placement, as the actual date is printed on the card.
7. If the rolling team answers the first question correctly, they have a choice. They can either roll again to try to place another card in the correct position (and opt for double-or-nothing if they wish—see step 9), or they can “lock” their cards. Locking cards means that a team collects the same number of chips that correspond to correct card placements. So, if a team chooses to lock

SPACE EXPLORATION TIMELINE CHALLENGE

their cards after placing their first card, they will receive one chip. Play then moves to the next team counterclockwise. If a team opts to try for another card, they will have the opportunity to earn more chips and lock their cards after each successful attempt. But if a team incorrectly places a card, they will lose all cards and chips they have not locked, and the turn moves to the next team. Students can earn more chips per turn but risk gaining no chips if they place the cards incorrectly.

8. Teams can also bet double-or-nothing by trying to identify the absolute date rather than the relative date upon their initial guess on placing a card. If a team correctly guesses an absolute date, they receive double the amount of chips that they would have earned on that turn. If a team incorrectly guesses an absolute date, they lose all chips from that turn and play moves on to the next team. If a team chooses not to identify an absolute date, the reading team identifies the correct date at the end of a team's turn to ensure that the timeline is being created correctly.
9. At the end of the game, ask students to observe any patterns they notice about space history. Ask: *Does the exploration of space tend to be evenly distributed, or does it occur in clumps? What may be a driving factor in that?* Observe the colors of the cards that correspond to a different category of space exploration. Ask: *What color cards are predominantly on the beginning of the timeline? What color cards occur later in the timeline? Why do you think this is?* Ask students about the role of technology. Ask: *How is technology related to space exploration?*

EXTENDING THE LEARNING

- Students can be tasked with creating their own set or an extension set of cards based on space history.